

WEST COAST LNG PROJECTS AND PROPOSALS



August 2006

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Kitimat LNG Facility



Canada Location: The Kitimat LNG Terminal will be located at either Emsley Cove or Bish Cove near the Port of Kitimat, on Tidewater Douglas Channel. The site is 14 km SSW of Kitimat, British Columbia.

Owner/Website: Kitimat LNG is a wholly owned subsidiary of Galveston LNG Inc., [www.kitimatlng.com].

Project Contact: Rosemary Boulton, President, Kitimat LNG, [RBoulton@kitimatlng.com].

Description: The Kitimat LNG facility will include marine offloading, LNG storage, natural gas liquids recovery, regasification and sendout facilities to deliver gas into the Pacific Northern Gas pipeline and ultimately into the West Coast pipeline system. A 30-inch diameter pipeline 14 kilometers in length will run from the terminal to Kitimat.

Average Natural Gas Production Capacity: 610 million cubic feet per day (initial).

Peak Natural Gas Production Capacity: Potential expansion to 1.0 billion cubic feet per day.

LNG Storage Capacity: 320,000 cubic meters (two tanks)

Tentative LNG Sources: Russia, Indonesia, Malaysia, and Australia. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: British Columbia, Alberta, Pacific Northwest, California

Approximate Project Cost: \$500 million

Projected On-Line Date: Pending regulatory approval, construction is scheduled to begin in fall 2006, with full operation set for early 2009.

Siting Process: Under the British Columbia Environmental Assessment Act, Reviewable Projects Regulation, the developer chooses a potential site for an LNG facility and applies for the various required government agency permits. Which

permits are required, including environmental permits, depends on the location and size of the proposed LNG facility. The Environmental Assessment Office coordinates assessments of the impacts of major development proposals in British Columbia and reports to the Minister of Sustainable Resource Management. The assessment process results in recommendations to either grant or refuse an Environmental Assessment certificate. A decision is made by the Minister of Sustainable Resource Management, Minister of Water, Land and Air Protection and a third appropriate minister. Various other government agency permits are also required. The British Columbia Environmental Assessment process works in conjunction with the Canadian Environmental Assessment Agency to ensure concurrent federal government approvals.

Status:

- 5/04 - Plans to build were announced.
- 8/18/04 - Application filed with the Environmental Assessment Office (EAO). Preliminary geotechnical and engineering reviews have been completed. The Preliminary Project Description was submitted to British Columbia EAO.
- 9/14/04 - Pre-Application start date.
- 3/31/05 - Project subject to Schedule A to Order under Section 11 of the Canadian Environmental Assessment Act of 1992 filed.
- 4/13/05 - The Terms of Reference for the project were filed for the environmental assessment certificate.
- 5/04/05 - EAO requested additional information before application could be accepted.
- 6/6/05 - Application accepted for 180 day review.
- Public comment period on application was 6/15/05 to 7/30/05.
- 1/13/06 – Bish Cove Addendum submitted in response to EAO's request for additional information. Public comment period for Addendum set for 1/18/06 to 1/31/06.
- 2/1/06 - Public comment period was extended and scheduled to close 2/22/06.
- 6/06/06 – Kitimat LNG Terminal received B.C. environmental approval.
- 8/01/06 – The Environment Minister has announced that the proposed LNG facility is not likely to cause significant adverse environmental effects.

Sources of Information:

- Environmental Assessment Office Project Information Centre [www.eao.gov.bc.ca], accessed 2/6/06.
- Kitimat LNG website [<http://www.kitimatlng.com>], accessed 2/6/06.
- "Kitimat LNG Plant Takes Step Forward" by Scott Simpson, Vancouver Sun, [<http://www.sqwalk.com/blog/000365.html>], accessed 2/6/06.
- "Environment Minister announces decision on the proposed Kitimat LNG Terminal" 8/01/06 [<http://www.news.gc.ca/cfmx/view/en/index.jsp?articleid=230719>]

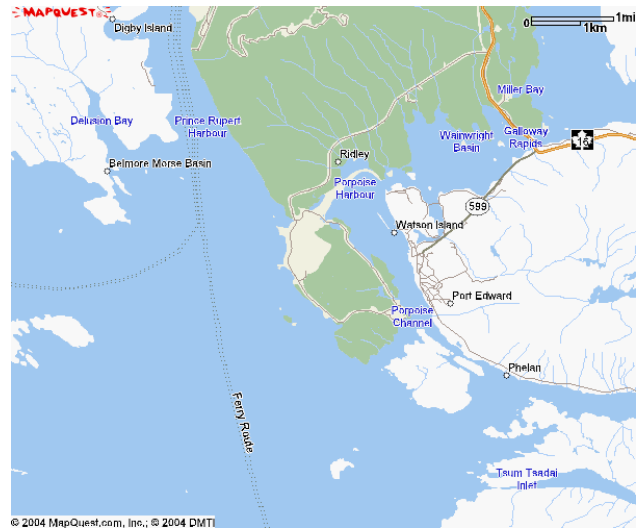
WestPac LNG Facility

Canada Location: The WestPac LNG Facility would be located on 100 hectares of industrial land on Ridley Island, British Columbia.

Owner/Website: WestPac Terminals, Inc., [www.westpacterminals.ca].

Project Contact: Rob Woronuk
President with WestPac; [robworonuk@westpacterminals.ca].

Description: The import facility would have one storage tank, dock facilities, gas treating and a small regasification plant. There will also be trans-shipment facilities to transport the LNG to other markets. No new pipelines will be needed.



Average Natural Gas Production Capacity: 130 million cubic feet per day.

Peak Natural Gas Production Capacity:

LNG Storage Capacity: 160,000 to 180,000 cubic meters (one tank).

Tentative LNG Sources: Middle East, Australia, Indonesia, and Russia.
(Sources of LNG are tentative until the final contract is signed.)

Possible Markets: British Columbia

Approximate Project Cost: CDN \$350 million

Projected On-Line Date: 2011

Siting Process: Under the British Columbia Environmental Assessment Act, Reviewable Projects Regulation, the developer chooses a potential site for an LNG facility and applies for the various required government agency permits. Which permits are required, including environmental permits, depends on the location and size of the proposed LNG facility. The Environmental Assessment Office coordinates assessments of the impacts of major development proposals in British Columbia and reports to the Minister of Sustainable Resource Management. The assessment process results in recommendations to either grant or refuse an Environmental Assessment certificate. A decision is made by the Minister of Sustainable Resource Management, Minister of Water, Land and Air Protection and a third appropriate minister. Various other government

agency permits are also required. The British Columbia Environmental Assessment process works in conjunction with the Canadian Environmental Assessment Agency to ensure concurrent federal government approvals.

Status:

- 7/05/04 - Agreement signed with Ridley Terminals and Port of Prince Rupert.
- 12/04 - WestPac entered into a 30-year land lease agreement with Prince Rupert Port Authority which gives WestPac the exclusive rights for LNG development on 250 acres of industrial land on Ridley Island.
- WestPac was to begin the environmental and regulatory approval process in 2005 but no information has been submitted.
- On June 6, 2006 Westpac filed its official [Project Description](#) with the Prince Rupert Port Authority, formally beginning the regulatory review and environmental assessment process for the project.

Sources of Information:

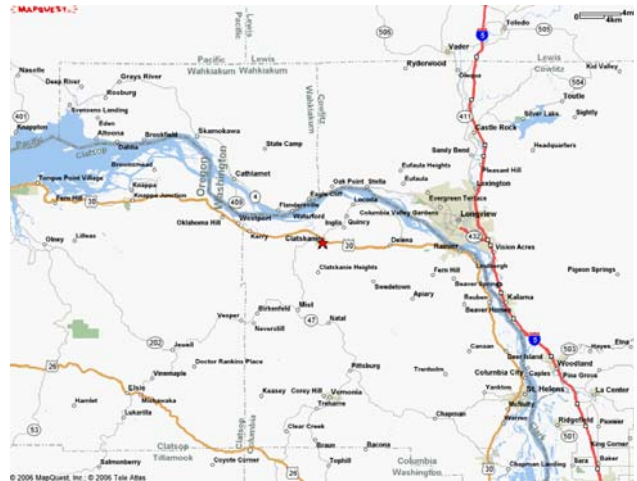
- "Huge \$200M Gas Project Hits 'Critical Milestone,'" Canada.com News.
- "Prince Rupert Seals Deal for LNG Facility"; Business Edge Archive; December 23, 2004, to January 5, 2005; Vol. 4, No. 46.
- "Driving the Natural Gas Development in Prince Rupert"; Prince Rupert Daily News; July 5, 2004.
- ***Canadian Liquefied Natural Gas Import Projects***, [www2.nrcan.gc.ca/es/erb/CMFiles/LNG_Web_Projects206NDS-04042005-9223.pdf], accessed 2/6/06.
- ***Canadian Liquefied Natural Gas (LNG) Import Projects: September 2005 Update***, [www2.nrcan.gc.ca/es/erb/CMFiles/LNG_Web_Projects_Update206NZR-20092005-8545.pdf], accessed 2/6/06.

Port Westward LNG Facility

Oregon Location: The Port Westward LNG Facility would be located adjacent to Port of St. Helens along the Columbia River about seven miles from Clatskanie, Oregon.

Owner/Website: Port Westward LNG LLC (formerly Cherry Point Energy LLC). [www.pwlng.com].

Project Contact: Spiro Vassilopoulos, Chief Executive Officer, (801) 550-1028, [vassilopoulos@pwlng.com].



Description: This import terminal would be near an existing power plant. A pipeline would be built to connect the terminal with the Williams Northwest Pipeline.

Average Natural Gas Production Capacity: 700 million cubic feet per day.

Peak Natural Gas Production Capacity: 1,250 million cubic feet per day.

LNG Storage Capacity: Unknown

Tentative LNG Sources: Australia, Indonesia, Malaysia and Russia. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Pacific Northwest

Approximate Project Cost: \$300-400 million

Projected On-Line Date: Unknown

Siting Process: FERC would be lead NEPA agency and the Oregon Energy Facilities Siting Council (OEFSC) would be lead state agency. An energy facility developer must apply to the OEFSC for a site certificate and must supply information about the proposed facility and the proposed site. This is a "one-stop" process in which the OEFSC determines compliance with specific standards of the OEFSC and other state and local permitting agencies. Public comment periods at the front end of the process, followed by a more formal contested case proceeding. In its application, the applicant must choose whether to seek land use approval from the local jurisdiction or to have the OEFSC make the land use determination. The OEFSC will issue a site certificate for the project only if the

local jurisdiction has approved the proposed land use or the OEFSC makes findings on compliance with the local land use ordinances.

Status:

- 8/04 – Port Westward LNG announces plans for project.
- 4/4/05 – Pre-filing Application sent to FERC.
- 4/28/05 – Pre-filing request denied by FERC. More information needed on project and availability of proposed site. Port Westward LNG is currently negotiating land purchase and planning the details of the project.
- 12/30/05 – An agreement on a lease proposal for the 145-acre parcel of land north of Clatskanie along the Columbia River has been reached with the owners. Formal language of the lease is currently being drafted.
- 2/23/06 - This project has been temporarily suspended because investors have withdrawn their financial support, which appears to have derailed a December 2005 negotiated lease agreement for the proposed project site. Site control is required by federal regulators for an LNG terminal proposal.
- 3/10/06 - The Port of St. Helens has approved a 99-year lease agreement on land along the Columbia River. Delays in obtaining a lease had caused at least one major investor in February to withdraw from the project. Port officials expect the Thompson family, who own the land, to approve the agreement soon. The project still needs permits and financing, though officials state that there have been "serious inquiries" from financial backers since the port approved the lease agreement.

Sources of Information:

- "St. Helens Leaders Set to Secure Land for LNG Plant," by Kate Ramsayer, The Daily Astorian, December 30, 2005, [www.dailyastorian.com/main.asp?SectionID=78&SubSectionID=876&ArticleID=30157&TM=64128.72], accessed 2/7/06.
- Port Westward LNG, contact information, [http://pwlng.com/contact_info.htm].
- "Port of St. Helens Approves Lease to Secure Land for LNG Plant," by Janine Manny, The Daily News, March 10, 2006, [www.tdn.com/articles/2006/03/11/area_news/news06.txt].

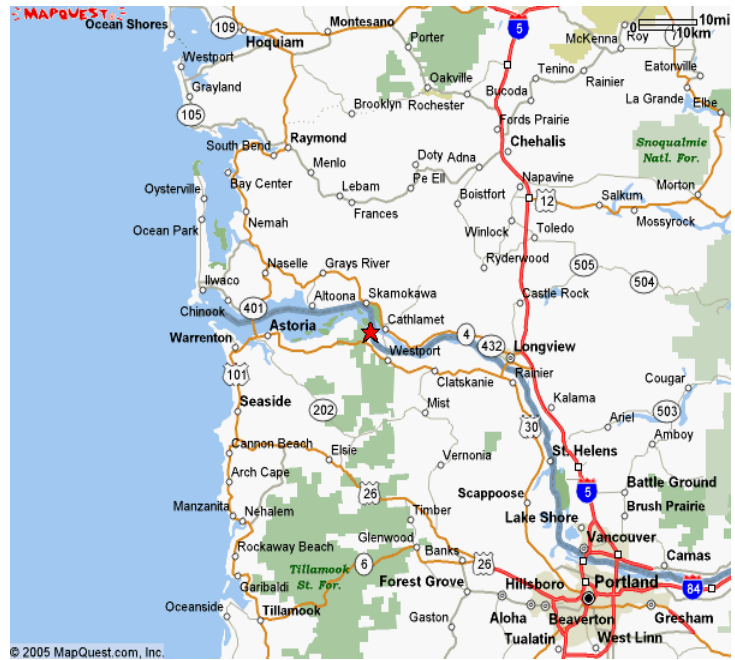
Northern Star LNG Facility

Oregon Location: The project would be located in Bradwood, Oregon, on the southern shore of the Columbia River approximately 38 miles from the Pacific shoreline.

Owner/Website: Northern Star Natural Gas LLC [www.northernstar-ng.com].

Project Contact: Gary Coppedge, Vice President, Permitting and Development, (503) 914-1905, [gcoppedge@northernstar-ng.com].

Description: The facility would consist of a marine terminal and LNG transfer lines, two storage tanks (and plans for a third tank in the future), LNG vaporization and sendout system, vapor handling system, utilities and infrastructure, and approximately 35 miles of new 36-inch diameter natural gas send out pipeline to interconnect with the Williams Northwest Pipeline system.



Average Natural Gas Production Capacity: 1,000 million cubic feet per day.

Peak Natural Gas Production Capacity: Unknown.

LNG Storage Capacity: 160,000 cubic meters per tank (two tanks).

Tentative LNG Sources: Unknown

Possible Markets: Pacific Northwest

Approximate Project Cost: \$520 Million

Projected On-Line Date: 2010

Siting Process: FERC would be lead NEPA agency and the OEFSC would be lead state agency. An energy facility developer must apply to the OEFSC for a site certificate and must supply information about the proposed facility and the proposed site. This is a "one-stop" process in which the OEFSC determines compliance with specific standards of the OEFSC and other state and local

permitting agencies. Public comment periods at the front end of the process, followed by a more formal contested case proceeding. In its application, the applicant must choose whether to seek land use approval from the local jurisdiction or to have the OEFSC make the land use determination. The OEFSC will issue a site certificate for the project only if the local jurisdiction has approved the proposed land use or the OEFSC makes findings on compliance with the local land use ordinances.

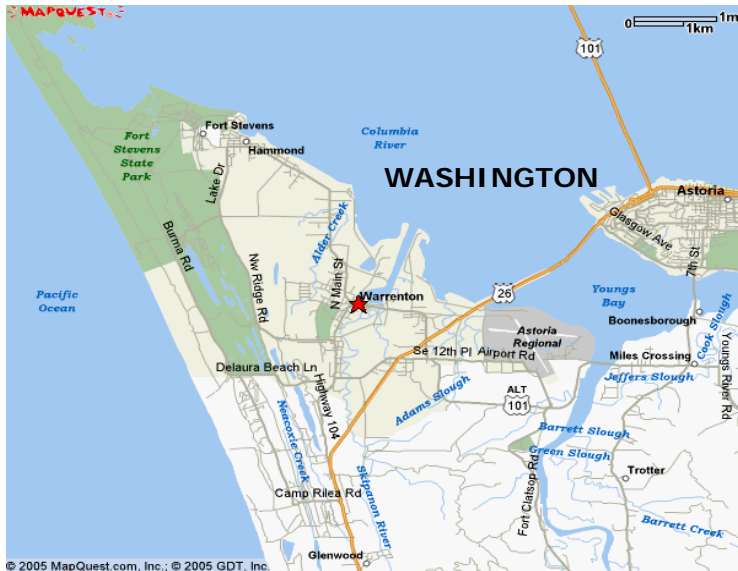
Status:

- 2/22/05 – Formally requested FERC to commence a NEPA pre-filing review.
- 3/7/05 - FERC granted Northern Star Natural Gas' request to use FERC's pre-filing process.
- 3/18/05 – Pre-filing process review papers filed with FERC.
- 4/15/05 - Northern Star LLC submitted a Notice of Intent to the Oregon Energy Facilities Siting Council.
- 9/13/05 – Notice of Intent to prepare Environmental Impact Statement and public meeting and site visit announced by FERC.
- 6/15/06 – Bradwood Landing LLC formal application has been submitted and FERC has officially noticed the application.

Sources of Information:

- "Pacific Northwest LNG Terminal, Pipe Project Cleared for NEPA Pre-Filing Review", Natural Gas Intelligence's Daily Gas Price Index posted March 7, 2005.
- Federal Regulatory Energy Commission Docket No. PF05-10-000; Internet letter posted Tuesday, February 22 by Patrick McGee, [www.voy.com/151230/2046.html].
- Oregon Energy Facility Siting Council, [http://egov.oregon.gov/energy/siting/review.shtml#Northern_Star_Natural_Gas], accessed 2/7/06.
- "Notice Of Intent To Prepare An Environmental Impact Statement For The Bradwood Landing LNG Project, Request For Comments On Environmental Issues, And Notice Of A Joint Public Meeting, And Site Visit," [www.northernstar-ng.com/news.htm], accessed 2/7/06.

Skipanon LNG Facility



Oregon Location: The project would be located on 96 acres on Warrenton's Skipanon Peninsula, at the mouth of the Skipanon River.

Owner/Website: Calpine Corporation, . [www.skipanonng.com].

Project Contact: Peter Hansen

Description: LNG would be off-loaded into two storage tanks at the import facility. A 30-inch

pipeline would take the natural gas to the northwest pipeline system for regional distribution.

Average Natural Gas Production Capacity: 1,000 million cubic feet per day.

Peak Natural Gas Production Capacity: Unknown.

LNG Storage Capacity: 158,987 cubic meters (2 tanks).

Tentative LNG Sources: Pacific Rim Producers. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Pacific Northwest

Approximate Project Cost: \$500 million

Projected On-Line Date: 2010

Siting Process: FERC would be lead NEPA agency and the Oregon Energy Facilities Siting Council (OEFSC) would be lead state agency. An energy facility developer must apply to the OEFSC for a site certificate and must supply information about the proposed facility and the proposed site. This is a "one-stop" process in which the OEFSC determines compliance with specific standards of the OEFSC and other state and local permitting agencies. Public comment periods at the front end of the process, followed by a more formal contested case proceeding. In its application, the applicant must choose whether to seek land use approval from the local jurisdiction or to have the OEFSC make the land use determination. The OEFSC will issue a site certificate for the project only if the

local jurisdiction has approved the proposed land use or the OEFSC makes findings on compliance with the local land use ordinances.

Status:

- 11/5/04 - The Port of Astoria agrees to lease 96 acres to Calpine.
- Calpine has not started the application process.

Sources of Information:

- "Port of Astoria Gives Gas Plant Its Blessing," The Daily News and AP, November 11, 2004.
- Port of Astoria website at [www.portofastoria.com/developmentprojects/sngf.html].

Jordan Cove Energy Project

Oregon Location: The Jordan Cove Energy Project would be located on the bay side of the North Spit of Coos Bay, Oregon, about six miles north of the entrance of the bay.

Owner/Website: Energy Projects Development, LLC (Evergreen, CO), [www.jordancoveenergy.com].

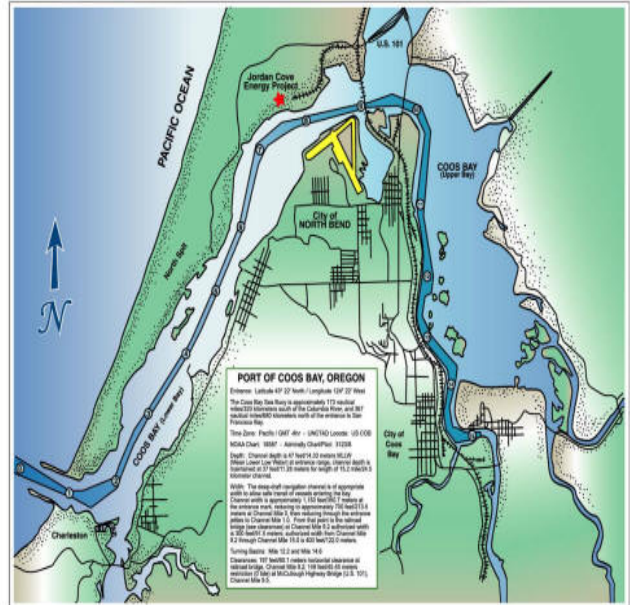
Project Contact: Robert L. Braddock, (541) 266-7510, [info@jordancoveenergy.com].

Description: The proposed receiving terminal would include consisting of two full-containment LNG storage tanks, each with a capacity 160,000 m³ (or 1,006,000 barrels). Each tank would be equipped with two can-type fully submerged LNG in-tank pumps with an individual capacity rate of 5,300 gallons per minute (gpm). There will be a 37 megawatt, natural gas-fired, simple cycle combustion turbine power plant in addition to the projects connection to Pacific Power. This facility would come with a single LNG ship unloading slip/berth, dredged from an upland adjacent to Coos Bay. There would be an LNG unloading system at the berth, consisting of three 16-inch-diameter unloading arms and one 16-inch-diameter vapor return arm, with a unloading capacity rate of 12,000 cubic meters per hour (m³/hr).

As proposed, the project would connect with the Pacific Connector Gas Pipeline (Pacific Connector). This is a 223-mile natural gas line that would connect the proposed Jordan Cove Liquefied Natural Gas terminal in Coos Bay, OR to Williams' Northwest Pipeline system near Myrtle Creek, OR, and to the Pacific Gas & Electric Company's backbone system near Malin, OR. Other potential interconnects include the Tuscarora gas transmission system and the Gas Transmission Northwest. Additional information on the proposed pipeline may be found at the owner's website as follows: www.pacificconnectorgp.com

Average Natural Gas Production Capacity:

Peak Natural Gas Production Capacity: 1 billion standard cubic feet per day (bscfd).



LNG Storage Capacity: 160,000 cubic meters (each tank).

Tentative LNG Sources: Alaska, Russia, South America or Australia. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: The proposed Pacific Connector will deliver one billion cubic feet of natural gas per day to the Pacific Northwest, California and Nevada through various interconnects with the aforementioned systems.

Approximate Project Cost: \$500 million

Projected On-Line Date: 2010

Siting Process: The Federal Energy Regulatory Commission (FERC), lead NEPA agency, will review the application concurrently with the Oregon Energy Facilities Siting Council (OEFSC), the state lead agency. FERC will oversee the preparation of an Environmental Impact Study (EIS) of the Project and review of the EIS will be performed by other involved federal agencies. This review is to ensure that their agency's concerns have been addressed and that federal rules and regulations have been followed. The role of OEFSC is to assure the proposed energy facility conforms to state and local land-use and zoning regulations, and is consistent with Oregon's vision of its long term energy future. The need for the proposed facility is considered prior to issuing a Siting Certificate. The Siting Certificate gives the project permission to construct and operate the facility subject to conformance with all other federal, state and local regulations. The Oregon Department of Environmental Quality implements and enforces all federal air and water quality standards.

Status:

- 11/22/04 - Notice of Intent submitted 11/22/04; comments due 02/10/05.
- 1/19/05 - Public Information meeting held.
- 3/24/05 - Project Order filed by the Oregon Department of Energy.
- JCEP will initiate the NEPA pre-filing process with FERC in early-mid 2006.
- Both the terminal and pipeline made pre-filings at the FERC in April. The FERC pre-filings dockets are PF06-25 and PF06-26, respectively. Pipeline routing, environmental scoping, engineering, marketing are all moving forward as the goal of filing a formal FERC application in January 2007 remains.
- Scoping comment meetings were held in July. Final date to submit scoping comments is July 24, 2006.

Sources of Information:

- Jordan Cove Project website [www.jordancoveenergy.com].

- "Pipeline Deal Under Review, County Could See Nearly \$2M," September 23, 2004, [www.jordancoveenergy.com/923world.pdf].
- "Panel Advises Getting More LNG Information", November 15, 2004, [www.theworldlink.com/articles/2004/11/15/news/news02.prt].
- Oregon Energy Facility Siting, [www.egov.oregon.gov/energy/siting/review.shtml#top].

Cabrillo Deepwater Port LNG Facility



California Location: The Cabrillo Deepwater Port LNG Facility project would be located approximately 14 miles from shore, 21 miles from Anacapa Island and 18 miles from the boundary of Channel Island Marine Sanctuary off the coast of Ventura County.

Owner/Website: BHP Billiton, [<http://lngsolutions.bhpbilliton.com>]. The U.S. Coast Guard and State Lands Commission have developed a website for this project at [www.cabrilloport.ene.com/].

Project Contact: Steven R. Meheen, (805) 604-2790, [Steven.R.Meheen@BHPBilliton.com].

Description: This import facility (floating storage and regasification unit) would be permanently moored about 14 miles offshore and would only be visible from elevated locations. The maximum water depth at the mooring would be about 2,900 feet. This facility would include three independent Moss spherical storage tanks mounted within the hull, accommodations for personnel, ship berthing and mooring system, and eight vaporizers for regasification. At the mooring point, three 14-inch flexible mooring riser pipes and a pipeline end manifold on the sea floor would connect to a new underwater, 21.1-mile, 30-inch pipeline. This pipeline would be buried as it approaches shore north of the Ormond Beach Generating Station in Ventura County and would connect to a Southern California Gas Company pipeline. No extensive onshore facilities would be constructed for this project.

Average Natural Gas Production Capacity: 800 million cubic feet per day.

Peak Natural Gas Production Capacity: 1,500 million cubic feet per day.

LNG Storage Capacity: 6 billion cubic feet total.

Tentative LNG Sources: Australia. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Distribution throughout the Southern California Region.

Approximate Project Cost: \$550 million

Projected On-Line Date: 2008

Siting Process: A joint EIS/EIR will be prepared with the U.S. Coast Guard as NEPA (federal) lead agency and the State Lands Commission as CEQA (state) lead agency. Other permitting state agencies include the California Coastal Commission which must evaluate the project's consistency with the federal Coastal Zone Management Act. The Governor has the authority to approve, approve with conditions, or veto the proposed project. Local permitting agencies include City of Oxnard, County of Ventura, and the Ventura County Air Pollution Control District. Under the Deepwater Port Act, the U.S. Coast Guard has less than one year to evaluate and reach a decision about project acceptability.

Lead Federal Agency: United States Coast Guard. For docket materials, go to the Department of Transportation's web site at [<http://dms.dot.gov/search/searchFormSimple.cfm>] and enter Docket Number 16877.

Lead State Agency: State Lands Commission, [www.slc.ca.gov/Division_Pages/DEPM/DEPM_Programs_and_Reports/BHP_DEIS-R.htm].

Status:

- 1/27/04 – The US Coast Guard accepted BHP Billiton's application as complete.
- 2/24/04 – Both federal and state agencies filed a Notice of Intent/Notice of Preparation of a Draft EIS/EIR.
- 3/15-16/04 – Public scoping meetings were held in Oxnard and Malibu.
- 4/16/04 – The USCG/MARAD clock was stopped due to data gaps and EPA permitting issues.
- 5/25/04 – Scoping Summary posted.
- 9/3/04 – The regulatory clock was restarted.
- 10/14/04 – The State Lands Commission deemed the application complete.
- 11/5/04 – EIR/EIS released to the public. Three hearings were held in Southern California on this project.
- 1/11/05 – A Suspension of Statutory Timeline (clock) and Request for Information was filed by the USCG/MARAD. Pending the receipt of additional information, this may cause a delay in the permitting process by about 4 to 6 months.
- 3/13/06 – Revised draft EIR released.
- There has been a process change to include the use of a closed loop system.
- August 3 will mark the end of the Public comment period.

Sources of Information:

- "Deepwater Port License Application for BHP Billiton Deemed Complete by U.S. Coast Guard/Maritime Administration," [www.bhpbilliton.com/bb]

/investorsAndMedia/newsAtBhpBillitonDetail.jsp?id=News%2F2004%2FNews%40BHPBilliton290104.html], accessed 2/8/06.

- Cabrillo Port Liquefied Natural Gas Deepwater Port, [www.cabrilloport.ene.com].

Clearwater Port LNG Project

California Location: The Clearwater Port Project would be located approximately 12.6 miles offshore of the City of Oxnard, Ventura County in the Santa Barbara Channel.

Owner/Website: Crystal Energy LLC, [www.crystalenergyllc.com].

Project Contacts:

Simon Poulter, Environmental Manager, [spoulter@padreinc.com] (805) 683-1233

Lisa Palmer, Spokesperson [lisapalmer@crystalenergyllc.com] (805) 680-2336



Description: Clearwater Port would use existing offshore Platform Grace to import liquefied natural gas (LNG). Reconfiguration of the platform would involve installing an LNG transfer system, a cool down system, six LNG pumps, six LNG vaporizers, and reinstalling and upgrading the platform's power-production capability. LNG would be transported by ship to Platform Grace, where it would be converted back into vapor form. A new SPP floating dock would be installed adjacent to the platform to safely moor LNG vessels during transfer. No additional on-site storage is expected, but if required, Crystal Energy would contract with existing onshore storage facilities.

The natural gas would be delivered from the platform to shore in a new, 13-mile, 32-inch subsea pipeline, using an existing pipeline corridor to minimize disturbance to the marine environment. The natural gas would come onshore by pipeline to a landing at an existing industrial site, the Mandalay Power Generating Station in Oxnard. From the landfall at Mandalay, a new 12-mile underground pipeline would tie into an existing 30-inch Southern California Gas Company pipeline at their preferred pipeline tie-in point near Camarillo.

Average Natural Gas Production Capacity: 1.2 Bcfd (billion cubic feet/day).

Peak Natural Gas Production Capacity: 1.4 BCF peak.

Tentative LNG Sources: Alaska, Southeast Asia, and Australia. Sources of LNG are tentative until the final contract is signed. However, Crystal has signed a Memorandum of Understanding with the Alaska Gasline Port Authority (AGPA)

to negotiate an LNG supply. Under the agreement, AGPA would supply up to 800 million cubic feet of LNG per day.

Possible Markets: Southern California

Approximate Project Cost: \$300 million

Projected On-Line Date: 2009

Siting Process: Once the application is deemed complete and accepted, a joint EIS/EIR will be prepared by the U.S. Coast Guard, as NEPA lead agency, and by the State Lands Commission, as CEQA lead agency. Under the Deepwater Port Act, the U.S. Coast Guard has less than one year to evaluate and reach a decision about project acceptability. The U.S. Coast Guard will review vessel safety and mooring design. Other federal permitting agencies include the Minerals Management Service. The California Coastal Commission must evaluate the project's consistency with the federal Coastal Zone Management Act, as well as issue a Coastal Development Permit for portions of the project within state waters. Local permitting agencies include City of Oxnard, County of Ventura, and the Ventura County Air Pollution Control District.

Status:

- 1/28/04 - Crystal Energy filed its application with the U.S. Coast Guard.
- 2/10/04. – Application filed with the State Lands Commission.
- 7/27/04 - Application was re-filed with U.S. Coast Guard.
- 7/29/04 – Application re-filed with State Lands Commission.
- 1/27/05 - Crystal Energy submitted responses to agency comments.
- 2/25/05 – State Lands Commission staff found that Crystal Energy's application remained incomplete. A date-specific review schedule will not be determined until a complete application has been accepted. The applicant is actively working on additional studies and providing the additional data. A completed application is expected in the third quarter of 2006.
- 6/26/05 - Woodside Energy ended an agreement to jointly develop the Crystal project.
- 5/22/06 – NorthernStar Natural Gas Announces Successful Funding for Development for Clearwater Port and an Oregon-based LNG Terminal; Projects Fully Funded Through Development Stage.
- 7/13/06 – Clearwater Port files Updated Deepwater Port Application.

Sources of Information:

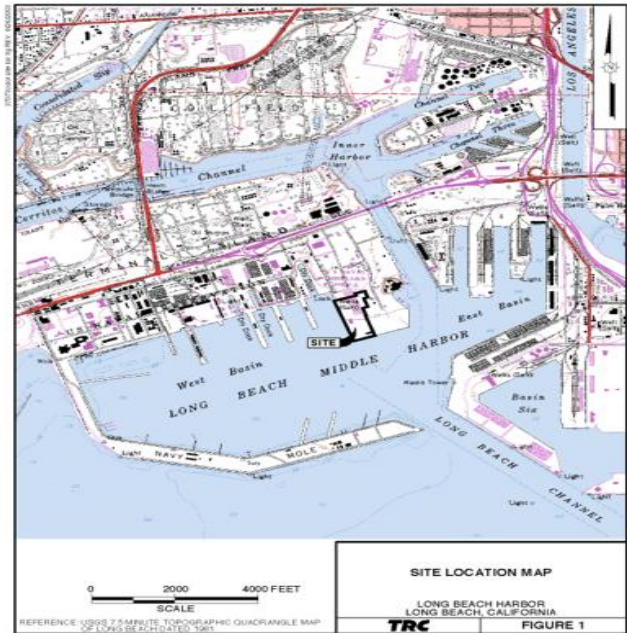
- Clearwater Port website, [www.crystalenergyllc.com].
- [<http://www.clearwaterport.com/>]

Long Beach LNG Facility

California Location: The Long Beach LNG Facility project would be located on Pier T, Berth 126, on Terminal Island in the Port of Long Beach, Los Angeles County. It would occupy approximately 27 acres.

Owner/Website: California LNG Project Corporation dba Sound Energy Solutions (SES), a subsidiary of Mitsubishi Corporation [www.soundenergysolutions.com] and ConocoPhillips.

Project Contact: Thomas E. Giles, (562) 495-9875, [thomasegiles@earthlink.com].



Description: This import facility would include an offloading dock for the berthing of an LNG ship, two 160,000 cubic meter LNG storage tanks, an LNG vehicle fuel tank, vaporization facilities, a natural gas liquids (NGL) recovery unit, a natural gas sendout pipeline, NGL send-out pipelines, and LNG truck loading facilities on Pier T. A new 2.3-mile natural gas pipeline connecting to an existing Southern California Gas Company pipeline will also be constructed.

Average Natural Gas Production Capacity: 700 million cubic feet per day.

Peak Natural Gas Production Capacity: 1,000 million cubic feet per day.

LNG Storage Capacity: 320,000 cubic meters (two tanks).

Tentative LNG Sources: Australia, Malaysia, and Alaska. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Southern California non-core customers, including electricity generators; municipal and investor-owned utilities, and, LNG vehicle fleets.

Approximate Project Cost: \$450 million

Projected On-Line Date: 2008 (SES would need four years to complete construction from date of FERC approval).

Siting Process: SES participated in FERC's prefiling process during which FERC and the Port of Long Beach filed a Notice of Intent to Prepare a Joint EIS/EIR on 9/22/03 followed by a supplemental notice on 11/10/03. The SES application to FERC was accepted on 1/26/04. A joint draft EIS/EIR with FERC as NEPA lead agency and Port of Long Beach as CEQA lead agency for the LNG terminal was released October 2005. The Public Utilities Commission has asserted jurisdiction, requiring terminal developers to apply for a Certificate of Public Convenience and Necessity. The POLB and California Coastal Commission will evaluate the project's consistency with the Port Master Plan, the California Coastal Act, and federal Coastal Zone Management Plan. Amendment to the Port Master Plan must precede Port of Long Beach approval of a site lease.

Lead Federal Agency: Federal Energy Regulatory Commission, [www.ferc.gov/for-citizens/projectsearch/SearchProjects.aspx]. Please see ACROBAT PDF file for [Instructions for accessing FERC website](#). 1 pg, 69 kb, Docket Number CP04-58.

Lead State Agency: Port of Long Beach, [www.polb.com/about/issues_reports/default.asp], Application No. HDP03-079.

Status:

- 10/14/03 – Joint federal-local port hearing held to consider preliminary environmental review.
- 1/23/04 – Transferred from pre-filing to filing stage.
- 7/13/04 - A site visit and technical conference were held in Long Beach.
- 10/7/05 - A draft joint environmental review document was released (FERC Docket No. CP04-58). A final EIS/EIR is expected in early-mid 2006.
- June 2006 - The Coast Guard has completed the Water Suitability Report (WSAR) and sent it to FERC.

Sources of Information:

- Sound Energy Solutions website, [www.soundenergysolutions.com].
- Federal Energy Regulatory Commission, [www.ferc.gov].

Ocean Way LNG Terminal



California Location: The Ocean Way LNG Terminal project would be located in the Pacific Ocean about 22 miles south of Malibu, California.

Owner/Website: Woodside Energy, Inc.
[www.woodside.com.au/home.htm].

Project Contact: Wendy Mitchell, Vice President of Government and Public Affairs, (310) 461-1380, 1901 Avenue of the Stars, Suite 200, Los Angeles, CA 90067.

Description: The project will be a ship mooring facility. The LNG will be regasified while still on board ship, transported through a flexible connection to an underwater natural gas pipeline that comes onshore at the Los Angeles International Airport, and connected to the Southern California Gas Company delivery network. The proposed site is to be located 22 miles off the coast of California at Los Angeles.

Average Natural Gas Production Capacity: 800 million cubic feet per day.

Peak Natural Gas Production Capacity: Unknown.

LNG Storage Capacity: None

Tentative LNG Sources: Australia. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Southern California.

Approximate Project Cost:

Projected On-Line Date: 2011.

Siting Process: A joint EIS/EIR will be prepared with the U.S. Coast Guard as NEPA (federal) lead agency and the State Lands Commission as CEQA (state) lead agency. Other permitting state agencies include the California Coastal

Commission which must evaluate the project's consistency with the federal Coastal Zone Management Act. The Governor has the authority to approve, approve with conditions, or veto the proposed project. Under the Deepwater Port Act, the U.S. Coast Guard has less than one year to evaluate and reach a decision about project acceptability.

Status:

- 1/18/06 – Woodside Energy announced a project involving special LNG tankers to regasify the LNG on board for direct delivery into pipelines. The location was still being considered.
- 3/15/06 – Proposed site announced to be in the Pacific Ocean 22 miles south of Malibu, California. Applications are expected to be filed within 60 days.
- 8/18/06 – Woodside Natural Gas Submits Deepwater Port Application to U.S. Coast Guard and City of Los Angeles.

Sources of Information:

- Woodside Energy, Inc., Natural Gas Press Release, [www.woodside.com.au/home.htm].
- "Natural Gas Terminal Off Coast is Proposed," by Marc Lifsher, L.A. Times, March 15, 2006, [www.latimes.com/business/la-fi-lng15mar15,1,1802724.story].

Terminal GNL Mar Adentro De Baja California

Mexico Location: The GNL Mar Adentro de Baja California project would be located eight miles off the coast of Tijuana, Baja California. It would be approximately six miles off the coast of Playas and 600 meters east of South Coronado Island.

Owner/Website: ChevronTexaco;
[www.chevrontexaco.com/gnlbaja].

Project Manager: Steve Schwartz,
(713) 752-6139.

Description: This import facility would be a gravity-based structure (GBS) including all utility systems required to support operations. Water depth at the proposed site is 65 feet. The terminal would be a fixed 980-foot-long concrete island with two regasification plants, storage tanks, a heliport, and a dock for LNG carriers. At this offshore terminal, the LNG would be regasified using seawater. A new underwater pipeline would connect with Baja California's existing gas pipeline system.



Average Natural Gas Production Capacity: 700 million cubic feet per day.

Peak Natural Gas Production Capacity: 1,400 million cubic feet per day.

LNG Storage Capacity: 250,000 cubic meters.

Tentative LNG Sources: Western Australia (Chevron-lead Greater Gorgon LNG project). (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Northern Baja California and throughout the North American West Coast.

Approximate Project Cost: \$650 million

Projected On-Line Date: 2008

Siting Process: Off-shore LNG terminals must obtain three key permits or approvals from Mexican government agencies. Developers must obtain a permit

to build and operate an LNG receiving terminal from the Energy Regulatory Commission (CRE). The developer must also prepare an environmental impact assessment and a public safety risk study and submit them to the Secretariat of Environment and Natural Resources (SEMARNAT). Based on these assessments, SEMARNAT issues an environmental impact authorization (EIA), including impact mitigation conditions. Ministry of Communications and Transportations (SCT) must grant a concession to use federal waters and to construct the LNG terminal in federal waters. No land-use permit from the local municipality is required for an off-shore terminal, but a pipeline Right of Way is needed from the municipality of pipeline landfall.

Status:

- 10/03 - An offshore *manifestacion de impacto ambiental* and risk study was submitted (EIS/EIR equivalent). No land-use permit is needed.
- 7/04 – Offshore permit application filed.
- 9/21/04 – Environmental permit granted.
- 1/6/05 – The Mexican Regulator Commission (CRE) awarded the permit to ChevronTexaco for construction of the import facility. Also Communication and Transport Secretariat (SCT) announces that ChevronTexaco is the winner of the public licensing round for an offshore concession to construct and operate its offshore natural gas import terminal. Three critical federal authorizations required from the Mexican government to build an offshore natural gas import terminal have now been obtained.
- 1/05 - Several U.S. and Mexican environmental groups filed a challenge under NAFTA, accusing Mexico of failing to consider endangerment to local species. Under NAFTA rules, the environmental commission can hold hearings on disputed issues surrounding the ChevronTexaco LNG terminal, but it cannot stop the project.
- Front end engineering and design work begun in March 2004 is continuing and a final investment decision is expected in 2006 followed by a timetable on the first receipt of gas.

Sources of Information:

- ChevronTexaco GNL Baja website, [www.chevrontexaco.com/gnlbaja], accessed 2/8/06.
- "ChevronTexaco de México Awarded CRE Permit and is Winner in SCT Public Licensing Round for the Construction of an Offshore Natural Gas Import Terminal in Baja California," [www.chevron.com/news/press/2005/2005-01-06_1.asp], accessed 2/8/06.
- "LNG plans challenged via NAFTA Environmental groups try new tactic in Baja," by Diane Lindquist, San Diego Union Tribune, May 4, 2005, [www.wildcoast.net/mznews/archives/000084.html], accessed 2/8/06.

Moss-Maritime Project

Mexico Location: Offshore facility 5.3 miles off the coast of Rosarito, Baja California.

Owner/Website: Moss-Maritime. Moss affiliate in Mexico is Terminales y Almacenes Maritimos de Mexico, S.A. de C.V. (TAMMSA).

Project Manager: Unknown.

Description: This project will consist of a Floating Storage and Regasification Unit (FSRU) anchored off coast. FSRU will have storage and gasification unit on board. Natural gas will be piped to shore through an 18-inch pipeline. The EIS states that the proposed FSRU will be based on LNG Ship Khannur with the accompanying undersea pipeline terminating at regulation and metering station located near the PEMEX facilities in Rosarito's industrial zone.



Average Natural Gas Production Capacity: 297 million cubic feet per day.

Peak Natural Gas Production Capacity: Unknown.

LNG Storage Capacity: 125,000 cubic meters

Tentative LNG Sources: To be determined.

Possible Markets: Western Mexico, Southern California and Southwestern U.S.

Approximate Project Cost: \$55 million

Projected On-Line Date: 2007

Siting Process: On-shore LNG terminals must obtain three key permits or approvals from Mexican government agencies. The Energy Regulatory Commission (CRE) is responsible for regulating the siting, construction, operation, and ownership of LNG terminals in Mexico. Developers must obtain permission to import gas into Mexico and to build and operate an LNG receiving terminal from CRE. The developer must also prepare an environmental impact assessment and submit it to the Secretariat of Environment and Natural Resources (SEMARNAT). Based on that assessment, SEMARNAT issues an

environmental impact authorization (EIA), including impact mitigation conditions. (It also requires LNG terminal developers to conduct a public safety risk study and issues a risk permit as well.) A land-use permit from the local municipality is the third key approval.

Status:

- 1/17/05 – TAMMSA filed for an environmental impact and risk license and submitted a complete EIS to SEMARNAT.
- 4/05 – Mexico's environmental agency approves the project. Other permits are pending.

Sources of Information:

- Sempra Energy website, [www.sempra.com/lng_sreplans.htm#costaazul], accessed 2/8/06.
- Phase 1 Comments of Sempra Energy LNG Corp. before the California Public Utilities Commission, March 23, 2004.
- "BP Indonesia, Sempra Ink LNG Supply Deal for the North Baja Terminal," *Natural Gas Intelligence*, October 13, 2004.

Energia Costa Azul LNG Facility



Mexico Location: The Energia Costa Azul LNG Receiving Terminal project would be located about 14 miles north of Ensenada, on the Costa Azul plateau.

Owner/Website: Sempra Energy LNG Corporation [www.sempra.com/index.htm].

Project Manager: Dale Kelly-Cochrane, (619) 696-4654, [dkelly-cochrane@sempra-slus.com].

Description: This project would include a land-based receiving facility and related port infrastructure. The project site has more than

400 acres of undeveloped land, remote from residential areas. There would be two full containment tanks, open rack seawater vaporizers, and a 42-mile 36-inch to 42-inch diameter spur pipeline connecting the terminal to the Bajanorte Pipeline. Site has space for two additional storage tanks and expansion capabilities of Up to 2,000 million cubic feet per day average with a peak of 2,600 million cubic feet per day (additional permitting required).

Average Natural Gas Production Capacity: 1,000 million cubic feet per day.

Peak Natural Gas Production Capacity: 1,300 million cubic feet per day.

LNG Storage Capacity: 320,000 cubic meters (two tanks).

Tentative LNG Sources: Approximately 500 million cubic feet per day from Indonesia, under 20-year agreement for gas from the proposed BP Tangguh LNG Project. Shell will supply the other half of the gas. (Sources of LNG are tentative until the final contract is signed.)

Possible Markets: Western Mexico, Southern California and Southwestern U.S.

Approximate Project Cost: \$669 million (terminal only)

Projected On-Line Date: 2007

Siting Process: On-shore LNG terminals must obtain three key permits or approvals from Mexican government agencies. The Energy Regulatory Commission (CRE) is responsible for regulating the siting, construction, operation, and ownership of LNG terminals in Mexico. Developers must obtain permission to import gas into Mexico and to build and operate an LNG receiving

terminal from CRE. The developer must also prepare an environmental impact assessment and submit it to the Secretariat of Environment and Natural Resources (SEMARNAT). Based on that assessment, SEMARNAT issues an environmental impact authorization (EIA), including impact mitigation conditions. (It also requires LNG terminal developers to conduct a public safety risk study and issues a risk permit as well.) A land-use permit from the local municipality is the third key approval.

Status:

- 4/03 - Environmental permit received from Mexico's environmental protection agency, SEMARNAT (Environment and Natural Resources Secretariat).
- 8/03 - Storage and regasification permit received from the CRE (Energy Regulatory Commission) as well as the required land-use permits from the Municipality of Ensenada.
- 10/04- Sempra signed a deal to buy 500 million cubic feet per day from BP's Tangguh LNG project in West Papua, Indonesia, for twenty years beginning in 2008.
- 10/04 - Royal Dutch/Shell agreed to contract for 50 percent of the import terminal's capacity and also reached an agreement with the Sakhalin Energy consortium that it leads to receive its supply from the Russian facility.
- 04/25/05, Sempra signed a preliminary, nonbinding Memorandum of Understanding (MOU) with Gazprom.
- 2/06 - Known court challenges have been resolved. This project has received all its permits and is under construction. Commercial operation is expected early 2008.

Sources of Information:

- Sempra Energy website, [www.sempra.com/lng_sreplans.htm#costaazul], accessed 2/8/06.
- Phase 1 Comments of Sempra Energy LNG Corp. before the California Public Utilities Commission, March 23, 2004.
- "BP Indonesia, Sempra Ink LNG Supply Deal for the North Baja Terminal," *Natural Gas Intelligence*, October 13, 2004.

Future Projects

The following projects have been announced but no additional details are available.

Warrenton LNG Project, Tansy Point, Oregon

The Tansy Point project is being developed by the Warrenton Fiber Company, which is owned by the local Nygaard family. The facility is proposed for the Nygaard logging yard; land that has been leased to the company by the City of Warrenton; lease changes can be negotiated within a five-year time-frame. No federal or state paperwork has been filed and feasibility studies are underway.

Sources of Information

- The Daily Astorian, August 12, 2005, "Columbia LNGs Roll On – Four Companies Propose Building LNG Receiving Terminals Along the Columbia River"; [www.dailyastorian.info/print.as;?ArticleID=26771&SectionID=2&SubSectionID=398].
- "Williams, Pacific Gas and Electric Co. and Fort Chicago Energy Partners L.P.

Esperanza Energy LLC, Offshore California

Esperanza Energy LLC, a newly formed subsidiary of Tidelands Oil & Gas Corporation, announced that the company is evaluating the feasibility of developing an offshore, deep-water Southern California liquefied natural gas (LNG) receiving terminal. Although a specific site off the Southern California coast has not been determined at present, the company is focusing its evaluation on several potential sites up to 12 miles offshore of the greater Long Beach area.

Esperanza Energy LLC, a newly formed subsidiary of Tidelands Oil & Gas Corporation, announced today that the company will use TORP Technology's HiLoad in its potential offshore, deepwater Southern California liquefied natural gas (LNG) receiving terminal. TORP's patented HiLoad LNG Regas technology has been developed to enable a safe and cost-efficient unloading and regasification offshore terminal operation.

Sources of Information

- PR Newswire, April 4, 2006, "Esperanza Energy Evaluating Southern California Offshore LNG Receiving Terminal";

[<http://sev.prnewswire.com/oil-energy/20060404/LATU03104042006-1.html>].

- Tidelands Oil & Gas Corporation, May 3, 2006, "Esperanza Energy to Utilize TORP's Environmentally Friendly Technology for Potential Southern California Offshore LNG Receiving Terminal"; [http://www.tidelandsoilandgas.com/flash_newstide_050306.htm].

Pacific Gateway LNG Facility, Offshore California

This facility will be an Energy Bridge™ deepwater port. Energy Bridge™ is the proprietary offshore LNG regasification and delivery system developed by Excelerate Energy. This system involves the use of purpose built LNG tankers for the transportation and vaporization of LNG through specially designed offshore receiving facilities.

At present, initial "fatal flaw" analyses of various offshore locations and pipeline routes are being performed. Current plans call for an application for construction of the deepwater port to be filed under the Deepwater Port Act in 2006.

Sources of Information

- "Pacific Gateway – California Project, [www.excelerateenergy.com/activities.php].

